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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/668,297	09/25/2000	Ken Mashitani	P107336-00008	1933

7590

06/14/2002

Arent Fox Kintner Plotkin & Kahn PLLC
Suite 600
1050 Connecticut Avenue NW
Washington, DC 20036-5339

EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/668,297

Applicant(s)

MASHITANI ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 24 April 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on April 24, 2002, which has been entered as paper number 9.
- By this amendment, the applicant has amended claims 1-6 and 8-13 and has canceled claim 7.
- Claims 1-6 and 8-13 remain pending in this application.
- The rejections to claims 1-13 under 35 USC 112, second paragraph, set forth in the previous Office Action dated October 24, 2001 are withdrawn in response to applicant's amendment *except* for claims 8, 9 and 12.

Response to Amendment

1. The amendment filed on April 24, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: *claim 1 has been amended* to recite a shading means comprising a continuous shading part having a first and a second side and a liquid crystal shutter part *and* a shiftable shading part provided on both sides of the continuous shading part. The specification only gives the support for having a liquid crystal shutter part placed at each side of the continuous shading part but **not** with additional shiftable shading part placed also at each side. Claim 13 corresponding recites a feature having the shading part disappeared in an optional region which is also not supported by the specification. Since if the shading is a *continuous* shading part how can it be disappeared? Clarifications are required.

Applicant is required to cancel the new matter in the reply to this Office Action.

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Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-6 and 8-13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.**

The reasons for rejection based on the newly added matters are set forth in the paragraph above.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-6 and 8-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The phrase “a liquid crystal shutter part ... a shiftable shading part provided on both the first and second sides of the continuous shading part” recited in the *amendment* to claim 1 is indefinite and in error since it is not clear how could a shutter or a shiftable shading part be provided on **both** the first and second sides of the continuous shading part. It appears to be one shutter part provided at **each** side of the continuous shading part. It is also not clear what is the relationship between the “liquid crystal shutter part” and the “shiftable shading part” recited in claim 1. Clarifications are required.

The phrase “the shading barrier dividing control circuit” recited in claim 3 is indefinite since it lacks proper antecedent basis from its based claim.

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The phrase “the shading barrier means” recited in claim 8 is indefinite since it lacks proper antecedent basis from its based claim. The phrase “to observe pixels displayed on the liquid crystal panel” recited in claim 8 is wrong since the pixels are the elements in the liquid crystal display panel that enable image elements to be displayed and the pixels themselves cannot be displayed on the panel. It is also not clear what is considered to be “the boundary part” here. The rejections set forth in the previous Office Action **still hold**.

Claim 9 is confusing and indefinite since it is not clear what are the limitations sought for patent here. The phrase “the boundary part of each divided area is wired” is confusing and indefinite. The rejections set forth in the previous Office Action **still hold**.

With regard to claim 12, the rejections set forth in the previous Office Action **still hold**.

The phrase “the shading part” recited in claim 13 is indefinite since it is not clear if it is referred to the “continuous shading part” or the “shiftable shading part”.

The applicant is respectfully advised to clarify all the discrepancies in the claims to make the claims in comply with the requirements of 35 USC 112, first and second paragraph.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on

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or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. **Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Hamagishi (PN. 6,049,424).**

The reasons for rejection are set forth in the previous Office Action dated October 24, 2001.

Claim 1 has been amended to include a sensor for sensing the position of a head of a viewer. Hamagishi teaches to use a *sensor* (101) for sensing the position of a viewer, including his head position, that is viewing the display, (please see Figure 25, column 10, lines 18-20). Hamagishi also teaches that the left eye and right eye images are displayed alternatively in striped shape on a liquid crystal panel (20), (please see Figures 5 and 22).

Claim 1 has been amended to include a shading means comprising a continuous shading part, having a first and a second side, and a liquid crystal shutter part at each side of the continuous shading part. Hamagishi teaches a shading movement means that is comprised of a barrier (12) serves as the “*continuous shading part*” and a *pair of liquid crystal shutters* (31 and 32) located at each side of the barrier (12), (please see Figure 5) such that the liquid crystal shutters may be controlled and switched between ON and OFF states to provide *shiftable shading parts* such that the shading barrier or barrier (12) is moved in accordance to the movement of the observer, (please see the Abstract and Figures 5-6).

Claim 8 has been amended to include an aperture part. Hamagishi teaches the shading barrier (10) also comprises a *slit* (11) that serves as the *aperture*. The aperture ration is implicitly chosen to allow the observer to view the images displayed on the liquid crystal panel.

With regard to claim 9, the liquid crystal shutters are also sandwiching the slit, (please see Figure 5).

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Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, 5, 6, 8-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Isono et al in view of the patent issued to Chikazawa.

Claim 1 has been amended. The reasons for rejection stated below reflects the rejection necessitated by the amendment.

Isono et al teaches a three dimensional image display of the *autostereoscopic* type, wherein the display comprises:

(1) a *liquid crystal panel* (46), serves as the *image display means*, for displaying alternative image strips of left eye image and right eye image, (please see Figure 2),

(2) a *parallax barrier panel* (28), serves as the *shading means*, for displaying and shifting the positions of stripe barrier that is displayed on the panel,

(3) a *head position detecting unit* (8), serves as the *sensor for detecting a head position* of a viewer, and

(4) a *computer* (20) and a *controller* (22), serve as the *area shifting and division control means* for dividing the parallax barrier panel into areas of the stripe barrier and shifting them to appropriate places for providing stereoscopic image display, (please see Figures 1-2, columns 4-7).

This reference has met all the limitations of the claims. Isono et al teaches that the parallax barrier is composed of a liquid crystal panel but it does not teach explicitly that it may also be comprised of liquid crystal shutters at two sides of a continuous shading part. Chikazawa in the same field of

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endeavor teaches a parallax barrier device that is composed of a liquid crystal device (38) having strips of liquid crystal shutters (39 and 40, Figure 13) wherein each of the shutters may be switched between ON and OFF state to provide movable barrier, (please see column 6). It would then have been obvious to one skilled in the art to apply the teachings of Chikazawa to modify the parallax barrier of Isono et al to be composed of liquid crystal shutters for providing an alternative arrangement for the barrier. Although these references do not teach explicitly to have a continuous shading part of barrier, such modification is considered to be an obvious to one skilled in the art since one can easily make one part of the panel or one set of the shutters to always be at a non-transparent or OFF state. In fact, by keeping one of the liquid crystal shutters at OFF state always, and by switching the liquid crystal shutters at both sides of the OFF stated shutter one can achieved the various barrier arrangements taught by Isono et al in Figures 6D to 6F for the benefits of providing different barrier arrangements for different viewing requirements.

With regard to claim 3, it is implicitly true that the liquid crystal panel for displaying the strip images is divided into strip areas that are in accordance to the positions of the stripe barrier on the parallax barrier panel in order to produce stereoscopic display of the images.

With regard to claim 5, Isono et al teaches that the parallax barrier panel (28) is placed at the light emission side of the liquid crystal image display panel (46), (please see Figure 1).

With regard to claim 6, Isono et al teaches that the parallax barrier panel is a liquid crystal panel, (please see column 4).

With regard to claim 8, Isono et al teaches the shading means may have various arrangements of aperture for properly observing the image displayed.

With regard to claim 11, Isono et al teaches the barrier panel is divided into uniform areas.

With regard to claim 13, Isono et al teaches that parallax barrier panel may be controlled so that the image display apparatus may be used to display two-dimensional image.

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10. Claims 2, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Isono et al in view of Chikazawa as applied to claim 1 above, and further in view of the patent issued to Taniguchi et al.

The three-dimensional image display taught by Isono et al in combination with the teachings of Chikazawa as described for claim 1 above has met all the limitations of the claims. Isono et al teaches that the stripe barrier on the parallax barrier panel is shifted by one pixel in response to the movement of the observer via the movement command from the controller (22) to provide stereoscopic image display but it does not teach explicitly that the one pixel is one quarter of the pitch of the parallax barrier, (please see column 7). Taniguchi et al in the same field of endeavor teaches a stereoscopic image display wherein the parallax barrier is driven to be shifted by one pixel, which corresponds to one third of the pitch of the stripe barrier, for adjusting the viewing condition of the display, (please see Figure 11B). Although these references do not teach that the one pixel is one quarter of the pitch of the parallax barrier however such modification would have been obvious to one skilled in the art since both of the references teach to shift the barrier in pixel length, which could be a fraction of the pitch of the parallax barrier, in order to obtain optimum viewing condition. Since it has been held when the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges (i.e. quarter length of pitch) involves only routine skill in the art. In re Aller, 105 USPQ 233.

With regard to claim 4, Isono et al does not teach explicitly to have the parallax barrier arranged between a light source and the image display panel. Taniguchi et al in the same field of endeavor teaches the stereoscopic image display may either have the parallax barrier placed at the emission side of the image display panel, (please see Figures 1 and 9) or have the parallax barrier placed between a flat backlight source (21) and the display panel (1), (please see Figure 29). It would then have been obvious to one skilled in the art to apply the teachings of Taniguchi et al to modify the three dimensional image

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display of Isono et al to have the parallax barrier placed between the light source and the image display panel for the benefit of providing an alternative arrangement for the display.

With regard to claim 10, both Isono et al and Taniguchi et al teach that the parallax barrier may be formed with different patterns of barrier areas for the purpose of improving the display and viewing quality. It would then have been obvious to one skilled in the art to design the parallax barrier to have different patterns for the barrier areas for the benefit of improving the image display quality.

Response to Arguments

11. Applicant's arguments filed on April 24, 2002 have been fully considered but they are not persuasive. The amended claims have been fully considered and they are rejected for reasons stated above.

12. In response to applicant's argument which states that the cited Hamagishi reference does not teach a continuous shading part and the movement means for the barrier includes a machine mechanism which therefore differs from the instant application the examiner respectfully disagrees for the reasons stated below. Hamagishi teaches the shading barrier comprised a barrier (12, Figure 5) that serves as the continuous shading part. Hamagishi teaches that the barrier is moved by switching the liquid crystal shutters located at the sides of the barrier which is exactly the same manner as disclosed by the instant application.

13. In response to applicant's argument which states that the cited Isono et al reference does not disclose a continuous shading part the examiner respectfully disagrees. The applicant is respectfully directed to Figures 6D to 6F of Isono et al wherein a continuous shading part is suggested.

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Terminal Disclaimer

14. The terminal disclaimer filed on April 24, 2002 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent 6,049,424 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

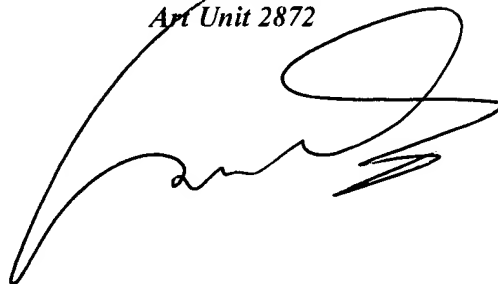
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
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A. Chang, Ph.D.
June 11, 2002

A handwritten signature in black ink, appearing to read 'Audrey Y. Chang', is written over the printed name and title.